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OFFICE OF THE
SECRETARY OF DEFENSE

JCSM-241-61

10 APR 1961

This document consists of 4 pages

MEMORANDUM FOR THE SECRETARY OF DEFENSE No. 1 of 1 Copies, Series OC

Subject: Re-examination of the Current and Long-Range
Department of Defense Requirements for Pro-
duction of Nuclear Weapons and Fissionable
Material (U)

1. Reference is made to Item 5 of your memorandum, dated 6 March 1961, which requested a re-examination of the current and long-range requirements for the production of nuclear weapons and fissionable materials.

2. In regard to current requirements, the Joint Staff is now engaged in its annual study of the atomic weapon stockpile composition for FY 1963 and FY 1964 in accordance with the Atomic Energy Commission-Department of Defense production agreement of 1955. This study will be completed by mid-summer. Essential inputs for this action, which include unified and specified commanders' atomic weapons requirement studies, are not yet available. Accordingly, the stockpile composition for FY 1962 forwarded by JCSM-531-60, dated 30 July 1960, was re-examined to determine its validity as a statement of current requirements.

3. The longer range weapon/material estimates contained herein are particularly sensitive to delivery vehicle availability and as a consequence may be influenced by the following studies which are currently under preparation:

a. Item 12 of your memorandum, dated 6 March 1961, which requested quantitative requirements for delivery vehicles for strategic weapons.

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b. Other related studies such as those dealing with limited war and NATO strategy which may have a significant influence on any projections of future requirements for all categories of weapons.

4. The Joint Chiefs of Staff, after re-examining the approved FY 1962 atomic weapons' stockpile and analyzing future requirements for atomic weapons and nuclear materials, conclude that:

a. The firm FY 1962 atomic weapons stockpile forwarded to you by JCSM-332-80, dated 30 July 1960, dimensioned by the availability of plutonium, represents the optimum mix of atomic weapons attainable through FY 1962.

b. Estimated weapon and material requirements for FY 1965 are: * weapons, * kg or alloy, * kg plutonium, * tritium, [REDACTED]

c. Estimated weapon and material requirements for FY 1968 are: * weapons, * kg or alloy, * kg plutonium, * tritium, [REDACTED]

d. [REDACTED] were provided with cluster-type warheads by FY 1968, the estimates of paragraph 4 c, above, would be as follows: * weapons, * kg or alloy, * kg plutonium, * tritium, [REDACTED]

5. The Joint Chiefs of Staff consider that there is considerable uncertainty associated with the above estimates of amounts of nuclear materials required. Some of the factors which contribute to this uncertainty are:

a. Whether or not there will be a nuclear test ban. (Testing would enhance the attainment of more economical weapon designs - designs which provide for increased efficiency in the "burning" of nuclear materials.)

* Figures will be forwarded by separate memorandum.

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b. The extent to which "spiking" of weapons - increasing yield by increasing nuclear material content - may be adopted. "Spiking" is generally an economical way (in terms of over-all weapon system cost) to improve over-all weapon system effectiveness, yet the practice has been limited due to over-all scarcity of nuclear material. However, "spiking" could become increasingly attractive, particularly if the over-all weapon build is to be limited by funds.

c. Uncertainties in the cost in terms of nuclear materials for similar type warheads. For example, ~~two different types of warheads~~ were similar in weights and yield, but were quite different in the nuclear materials required.

Pu-239

T

Pu-238

Oy



d. New designs (e.g., cluster warhead).

e. Continuing stockpile requirement for large quantities of tritium (a reactor product), which has a short half life (12.5 years).

f. The need for sufficient flexibility to:

(1) Support increased emphasis on certain systems which may be necessitated if a change in military posture of either the United States or the Soviet Union occurs.

(2) React to a major breakthrough in nuclear weapon technology which may occur if nuclear testing is resumed.

6. A review of the Atomic Energy Commission's November 1960 Planning Estimates indicates that the planned production of nuclear material through FY 1965 will fall short of the quantities estimated in paragraph 4, above. However, in view of the tentative nature of this

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estimate and the high cost involved, the Joint Chiefs of Staff do not propose that material production facilities be expanded. Although there appears to be a future need for increasing plutonium-238 production capability, such an increase may be attainable through modernization or rehabilitation of existing facilities. In any event, operation of current facilities will be required to continue weapons production and/or modernization beyond FY 1963.

For the Joint Chiefs of Staff:

L. L. Lemnitzer
L. L. LEMNITZER,
Chairman,
Joint Chiefs of Staff.

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